



UNIVERSITI  
TEKNOLOGI  
PETRONAS

## **Enhanced Hostel Registration Application**

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## **ABSTRACT**

Enhanced Hostel Registration Application (EHRA) is an android application designed to help hostel registration process in higher learning institution. Current hostel registration system is still using paper and pen method. The data and information such as room number, student's name and student's ID number is stored in standalone Microsoft Excel worksheet. It cause a lot of problems such as room redundancy, duplication of student's details, time consuming and difficulties to staff and student. The usage of paper for the registration process could contribute to poor waste paper management after it no longer has been used. The objective of this project is to develop android application with data storage system for hostel registration process in higher learning institution. Another objective is to promote green computing environment in higher learning institution by reducing the usage of paper in hostel registration system. In developing EHRA, the type of methodology to be used is Rapid Application Development (RAD). By applying RAD in the development process, there are four main phases: requirement analysis and system designing, project prototyping, system testing and execution. As the result, EHRA is designed with a few features such as room tracking, student's information tracking, add roommate and data storage.

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## **ABBREVIATIONS AND NOMENCLATURES**

EHRA	Enhanced Hostel Registration Application
IT	Information Technology
HTML	HyperText Markup Language
RAD	Rapid Application Development
SDK	Software Development Kit
MIT	Massachusetts Institute of Technology
UTP	Universiti Teknologi PETRONAS

## CHAPTER 1: INTRODUCTION

### 1.1 Background of Study

#### Hostel registration process in Universiti Teknologi PETRONAS (UTP)

This research and background study includes the hostel registration process in UTP. The process flow in Figure 1 below was received from Residential Village Management, a department who manage accommodation matters in UTP.



Figure 1: Hostel Registration Process of UTP

In UTP, there are seven Residential Villages accommodate around 5000 students. Every Residential Village is supervised by two officers and follow the standard registration process as shown above. The registration process uses paper to jot down the students' details, key in the details into Microsoft Excel worksheet and use the master worksheet as database. The process was done stage by stage. The data or details were not directly updated into the master table. The data transfer process and synchronization with the master table only can be done at the last stage after all Residential Village occupied and the registration period was ended.

#### Potentials of android app to enhanced the registration process

Android application nowadays is highly demanded in market as the increase of android smartphone and tablet user around the world. In 2012, the number of smartphone user in United States alone was about 91.4 millions where android has the highest market share of 46.9% (Alexander A., 2012). Enhanced Hostel Registration Application (EHRA) is an android application which promotes green computing technology in order to preserve our nature. EHRA will generate hostel block number, house number and room number then assign the students accordingly. By using android smartphone or tablet, EHRA aims to replace traditional brick and mortar hostel registration system in higher learning institution which is still using paper and stand alone Microsoft Excel.



As a room can be registered for two students, EHRA main function is to find out specific room number (consist of hostel block, house and room) only once for a pair of students. This main function will eliminate booking redundancy problems and at the same time enhance the efficiency of hostel registration process. EHRA will be controlled and managed by hostel management authority. In the application, there will be a button to show the room number. By clicking the button, the user will get the room number. As a return, student's name and ID number need to be filled in the provided list box. Student's details and the room number will be recorded in a storage file.

The development of EHRA used ECLIPSE development tools and Android SDK at the early stage as learning and understanding process.

## 1.2 Problem Statement

Current hostel registration system is still **using paper and pen method**. The data and information such as room number, student's name and student's ID number is stored in standalone Microsoft Excel worksheet. It cause a lot of problems such as **room redundancy, duplication of student's details, time consuming, missing data during transfer process** and difficulties to staff and student. Store the data and information in standalone file may put the recorded details in the risk of file missing problem. The tendency of intended human errors occurs is high when it is involving manual process compare to the digital process (Roushi Low, 2008).

In addition, the computer used in this process **consumed a lot of electric energy and release a lot of heat** (Howard, 2012). A standard workstation computer use 70-100 watt electric energy plus 20-30 watt for the monitor (Michael Bluejay, 2013). This may contributes to the increasing of greenhouse gas effect in atmosphere.

The usage of paper for the registration process could contribute **to poor waste paper management** after it no longer has been used. It is contradict to the green environment practicing in higher learning institution. Poor waste paper management contribute a little bit to greenhouse effect (Beckner, 2011). This action could contribute to poor waste paper management that can cause greenhouse effect due to deforestation process in manufacturing a paper.

Table 1 below shows the calculation on the number of A4 size paper produce from one tree:

Particular	In Metric Unit
Type of paper	Copying Paper
Dimension of Single sheet of paper	A4 (210x297 mm)
Weight of paper	70 gm/m <sup>2</sup>
Weight of single sheet	$70 \times 0.21 \times 0.297 = 4.366$ gm
Type of tree	Pine
Dimension of tree	25 m high & average diameter is 30 cm
Volume of one tree	$3.146 \times 0.15^2 \times 25 = 1.7696$ m <sup>3</sup>
Density of pine (dry weight basis)	600 Kg/m <sup>3</sup>

Weight of the tree	$600 * 1.77 = 1,040 \text{ Kg}$
Yield of pulp (pulp produced/weight of wood)	50%
Pulp produced	$0.5 * 1040 = 520 \text{ Kg}$
Number of sheets produced	$520 * 1000 / 4.366 = 119,100$

Table 1: The number of A4 size paper produce in one tree (*Retrieved April 26, 2013, from:*  
<http://www.paperonweb.com/A1011.htm>)

### 1.3 Significant of the Project

Since Enhanced Hostel Registration Application (EHRA) use android gadget to run, it will help the user to identify available room for new registration. It reduces time consumption to search the vacancy manually. By using its own storage system, it stores students' information such as name and ID number. Once a particular student has registered in the system, his/her information will be traced for the next registration process to eliminate redundancy problem. A student only allowed taking a room only.

EHRA performs fully digital process and does not use even a single piece of paper. The advantage of this method is reducing paper consumption in order to preserve better eco-friendly environment in campus. By using android gadget for the platform, EHRA will be able to save electrical energy consumption because gadget likes phone or tablet utilize less energy (6-8 watt) compare to desktop computer or laptop(70-100 watt). Another advantage of using phone or tablet is mobility. EHRA helps the user in providing hostel information (room number, student's name and ID) during ground inspection process.

The Chart 1 below displays the findings about the tiny energy consumption of next-generation phones or tablets, compared to the energy needs of more traditional devices-as calculated in an excellent recent analysis by the Electric Power Research Institute, 2012.

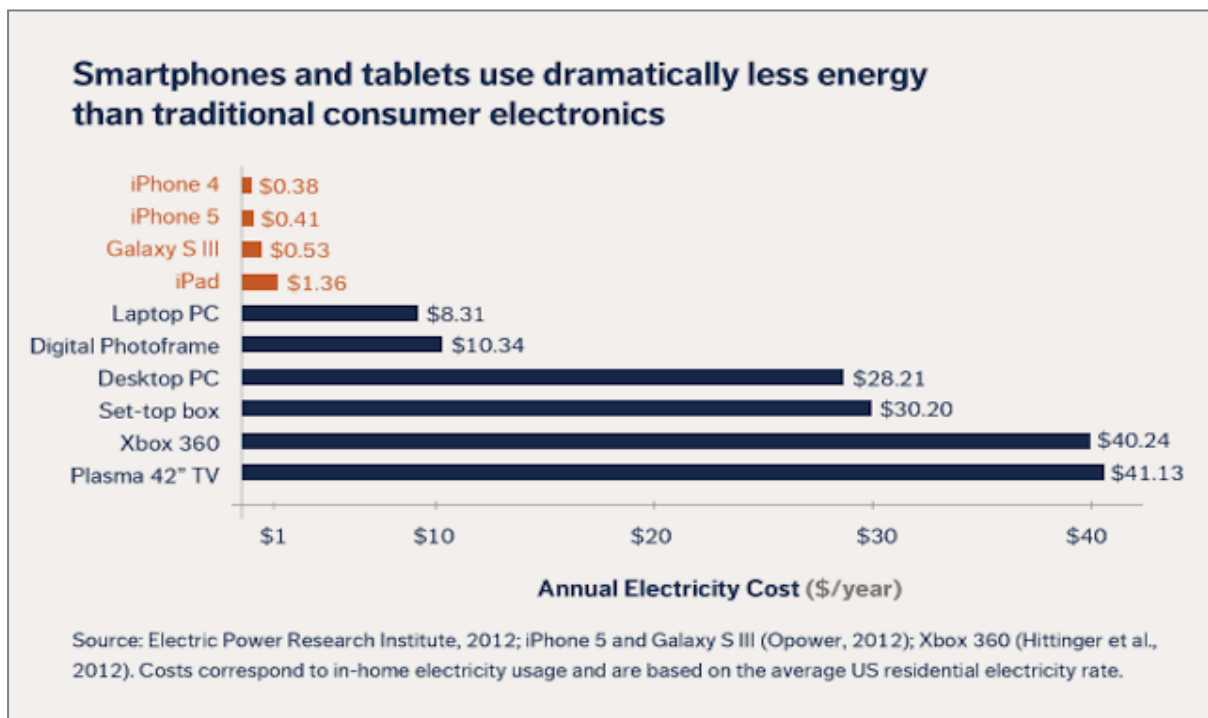


Chart 1: Annual Electricity Cost (US Dollar/Year)

## **1.4 Objective**

Enhanced Hostel Registration Application (EHRA) is an alternative and potential revolutionary system for current manual registration system. The objectives of this system are as follow:

- To develop android application with data storage system for hostel registration process in higher learning institution
- To promote green computing environment in higher learning institution by reducing the usage of paper in hostel registration system

## **1.5 Scope of Study**

The scope of study for this project is to develop eco-friendly android application; Enhanced Hostel Registration Application (EHRA) that will replace current hostel registration system without using paper and standalone storage file. This system is planned to be implemented in Universiti Teknologi PETRONAS (UTP) to replace their traditional hostel registration system. As the number of student in UTP keep increasing year by year, efficient and effective hostel registration system become a crucial part in their daily management operation. Since a lot of problems occur through the whole semester regarding student accommodation, UTP Residential Village Management should take proactive improvement by optimizing current technology advantages to reduce then eliminate the difficulties. In addition, to promote green environment in higher learning institution, EHRA is aimed to be implemented in UTP as one of the practical steps to reduce the usage of paper in daily manoeuvre.

## **1.6 The Relevancy of the Project**

- Applicable in campus

EHRA is designed to assist hostel registration process in higher learning institution. As the number of student register for room is big in every semester, it is reasonable to implement EHRA in campus to ease staff and student dealing with registration process. EHRA will be able to check room availability, student information and can store the details in its storage system. EHRA fulfil the scope of study in this project by replacing paper registration system with digital registration process.

- Knowledge base of staff and student

As the hostel registration process has been done repeatedly for every semester, the staff and student were familiar with the procedure. EHRA is not totally replacing the current procedure but it improves the data management process. If EHRA is implemented in the campus, there is no additional training and explanation for the staff and student in order to adapt the system. They already have knowledge base of hostel registration process and EHRA just an application to improve the process efficiency and effectiveness.

## **1.7 Feasibility of the Project**

- Technical and technological feasibility

EHRA is built on android platform. Equipped with fusion table as cloud storage system EHRA can store data in larger size from any other android application using common server. Android phone or tablet is available in market and affordable. Android application is known for its user friendly features. To develop EHRA, ECLIPSE development tool can be used and the programming code can be referred through open sources.

- Time

As the time allocated for project development is 28 weeks, EHRA estimated to be completed within the timeframe. Rapid Application Development (RAD) was chosen as development methodology consist of four stages; system designing, project prototyping, system testing and execution. RAD is a concept where the product can be developed faster and of higher quality due to the time constraint.

- Cost

Development of EHRA by using RAD methodology will be able to reduce the cost. MIT Apps Inventor and ECLIPSE development tool will be used to develop the system. Referring to open source code, the developer can reduce the cost by eliminating consultancy services. To implement EHRA in the hostel registration process, the user required to use android tablet to run the system which is affordable.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Green Computing**

Green Computing Technology is an initiative in order to preserve our world from global warming. Green computing is the practice of using computer and other related technology in environmentally possible manner (Buzzle.com). Green computing is a new technology that can reduce the disposal of electronic waste and also beneficial in preventing global warming problem. The technology can help human community in planning and executing better waste management.

According to Shawn D., 2012, his research stated that green computing is an umbrella term referring to an eco-conscious way of developing, using and recycling technology, as well as utilizing resources in a more planet-friendly manner. Green computing can enhance current technology utilization. It may improve the energy usage efficiency, resources optimization, provide awareness of greenhouse gas effects and provide strong environmental control in production.

Computers are hard to recycled, and when they are, it's typically in developing nations by people without proper training or safety gear (Howard, 2012). The scholar stated that the role of government is a vital key to ensure the success of green computer practicing in their country. Financial support for research and development (R&D) of green computing technology should be allocated in government's planning as well as the execution and enforcement.

In another research by Nashua, 2012, he found that environmentally friendly is not a trend but it is a major movement. The study on green computing technology shows that current information technology (IT) are accepting the challenges of making our world safer and sustainable for future generation. As IT sector is greening up fast, the demand of preventing the earth from greenhouse effect becomes one of the crucial parts in pursuing rapid development.

Enhanced Hostel Registration Application (EHRA) is use android tablet as its platform to run the registration process. Compare to desktop computer or laptop, tablet is better use of resource because it utilizes less energy.

## **2.2 Alternative to Paper Consumption**

As the development going so fast, paper consumption keeps increasing from year to year. Refer to the statistic published by Statspotting.com in 2012, world consumption of paper has risen by 400% in the past 40 years leading to increase in deforestation. From the figure, world community right now still have no proper waste paper management as people not really take the initiative to recycle used paper.

Paper waste prevention is the practice of reducing or eliminating paper use so that the potential for paper to be used inefficiently or disposed is prevented in the first place (Beckner. 2011). Further elaboration from the scholar findings is instead of having waste paper recycling management, the community should take other alternative to avoid the usage of paper in daily life activities. Switching from paper to electronic devices could be the best way for the time being.

The importance of paper in daily activities cannot be denied. Paper has been used as communication tools, knowledge capturing and codification equipment and others. With all around industrial development and upward trend in the literacy rate, demand of paper in the country is increasing by leaps and bounds day by day (Papermart.In, 2009). Production of paper in manufacturing industry keeps increasing to fulfil the demand of paper. As the result, the earth is suffering greenhouse effect due to the deforestation to make the paper.

To reduce the usage of paper, a step of prevention from using the paper is the most appropriate alternative besides recycling the paper itself. Even if all paper was recycled, there would still be a need for paper to be made from virgin resources which is trees (Beckner. 2011). A proper paper waste management should be applied in order to reduce the manufacturing of paper and reducing it usage.

EHRA is fully digital process without using any single piece of paper. Implementation of EHRA in campus can reduce paper consumption because it changes the procedure of hostel registration from paper based method to digital method. In the long term period, the system not only reduce the cost for paper consumption by preserve our nature environment.



### **2.3 Digital Registration vs Conventional Registration**

Digital registration will reduce the intended human error as it will keep the details in organized manner. According to Rouhshi Low, 2008, in his research paper stated that the opportunity to do intended error might be reduced in digital registration system through the use of technology and the requirement that electronic instruments must be digitally signed before they can be accepted for lodgement and registration. So digital registration can reduce or eliminate data inconsistency, redundancy and duplication problem cause by human error.

The usage of paper in conventional registration is not an effective way in handling data and information. A research shows that innovative techniques must be developed to present information that was not possible with paper (Lewis Hassell, 2004). According to the author, information technology (IT) should replace paper registration and file keeping process. Finding a particular piece of information is infinitely easier with a modern computer system than it is with reams of paper.

As the error cause by human factor become a challenge in keeping data and information, digital approach become the alternative way to reduce the error. EHRA is functioning in fully digital. It will be able to reduce the intended human error during the registration or file keeping process. It is also innovative approach to optimize technology utilization in business process.

## **CHAPTER 3: METHODOLOGY**

In developing Enhanced Hostel Registration Application, the type of methodology to be used is Rapid Application Development (RAD). As the time given to complete this project only within 7 months or 28 weeks, RAD is the most suitable method to develop the application. RAD is a concept where the product can be developed faster and of higher quality.

In this Enhanced Hostel Registration Application, system testing is a crucial part in order to develop a working application. Starting from the scratch, the system is predicted to face a lot of difficulties, bugs and error during the development process. Though by using RAD as the type of methodology, the developer will be able to find the issues, root causes of error and then fix the problem during the testing phase.

Budget allocation for the project is small, RAD could help in reducing the development cost of this project as it provides flexibility to completely develop the system. To satisfy the needs of user in the future or improve the application's features, the developer needs to modify and enhance the application. Therefore, by applying RAD the developer can reduce the complexity of the system at the same time do the changes faster and more efficient.

By applying RAD in the development process, there are four main phases:

- i. Requirement analysis and system designing
- ii. Project prototyping
- iii. System testing
- iv. Execution

Some companies offer products that provide some or all of the tools for RAD software development. These products include requirements gathering tools, prototyping tools, computer-aided software engineering tools, language development environments such as those for the Java platform, groupware for communication among development members, and testing tools. RAD usually embraces object-oriented programming methodology, which inherently fosters software reuse. So RAD is very suitable for faster and higher development of application.

### 3.1 Project Activities

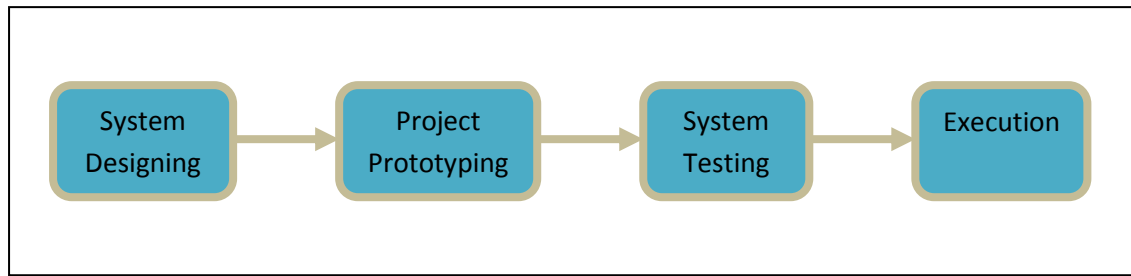


Figure 2: Rapid Application Development Cycle

#### 1. Requirement Analysis and System Designing

This is the first of project development. The developer will analyze and discover the important features to be developed in the application. Process flow of the system will be discovered and draw. This analysis is the crucial part before system designing phase take place. By knowing the important features required, the developer will be able to build the guide base for the next phase.

#### 2. Project Prototyping

There are three sub-processes under project prototyping; develop, demonstrate and refine. These sub-processes are a cycle prototyping. Try and error approach will be used in this phase. The develop stage including interface design and system functioning. At demonstrate stage, the developer will use android emulator to test the system. Meanwhile at the refine stage, error debugging process will take place.

#### 3. System Testing

The testing phase in Enhanced Hostel Registration Application will be conducted by comparing the application with the current registration system. As per research conducted on the current registration system, there are some pros and cons of both registration systems. However, both registration systems have some of similarities and also provide the same service.

#### 4. Execution

The system will be implemented in Residential Village of Universiti Teknologi PETRONAS to enhance efficiency and effectiveness hostel registration system as stated in the objective of this project. The reasons of choosing UTP because the current hostel registration system still uses paper approach and standalone storage file.

### 3.2 System Architecture

- Use Case Diagram

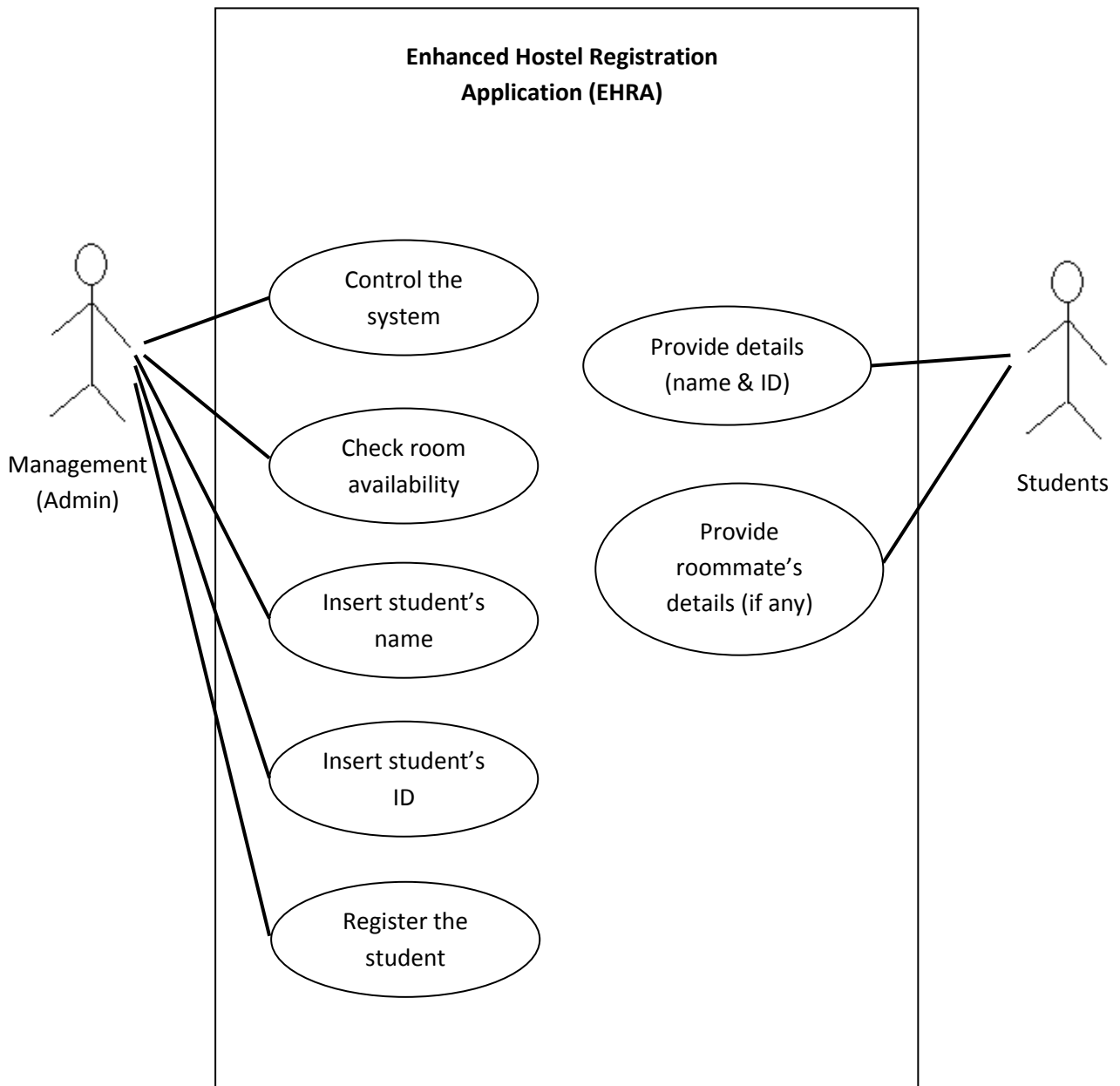


Figure 3: EHRA Use Case Diagram

- Design Architecture

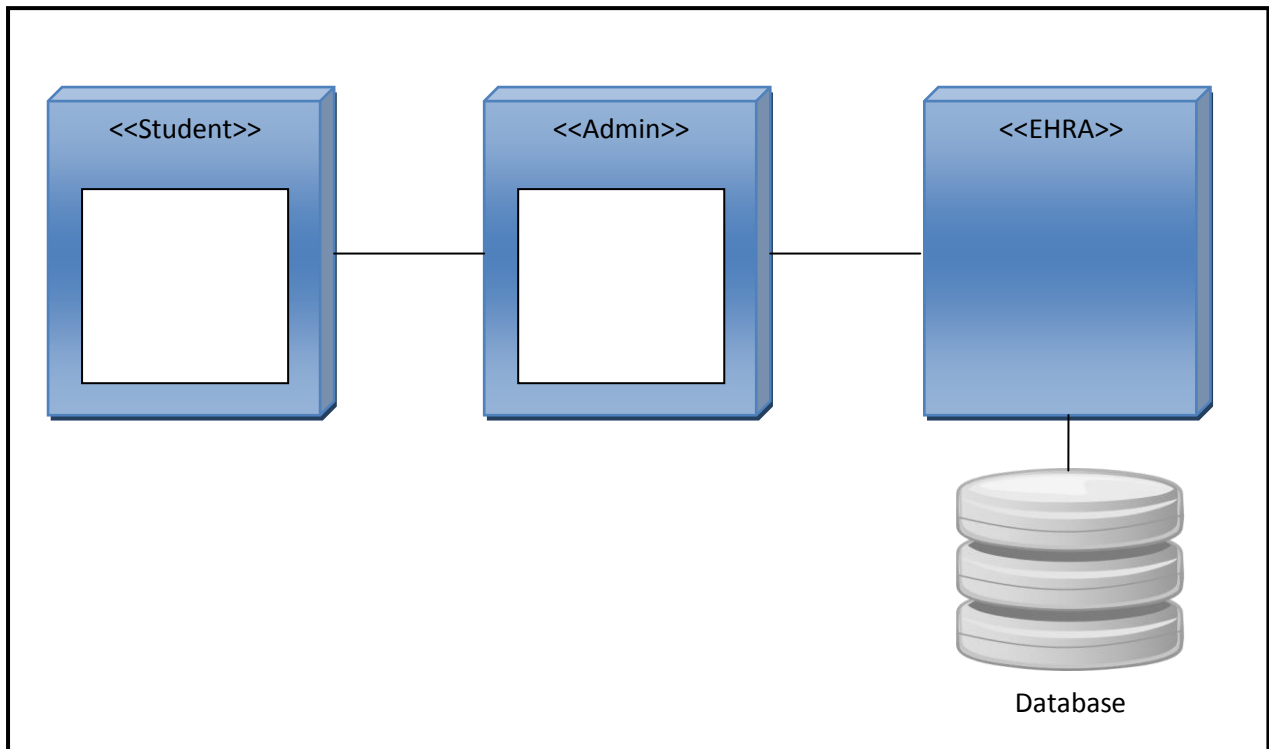


Figure 4: EHRA Design Architecture

- Process Flow of the System

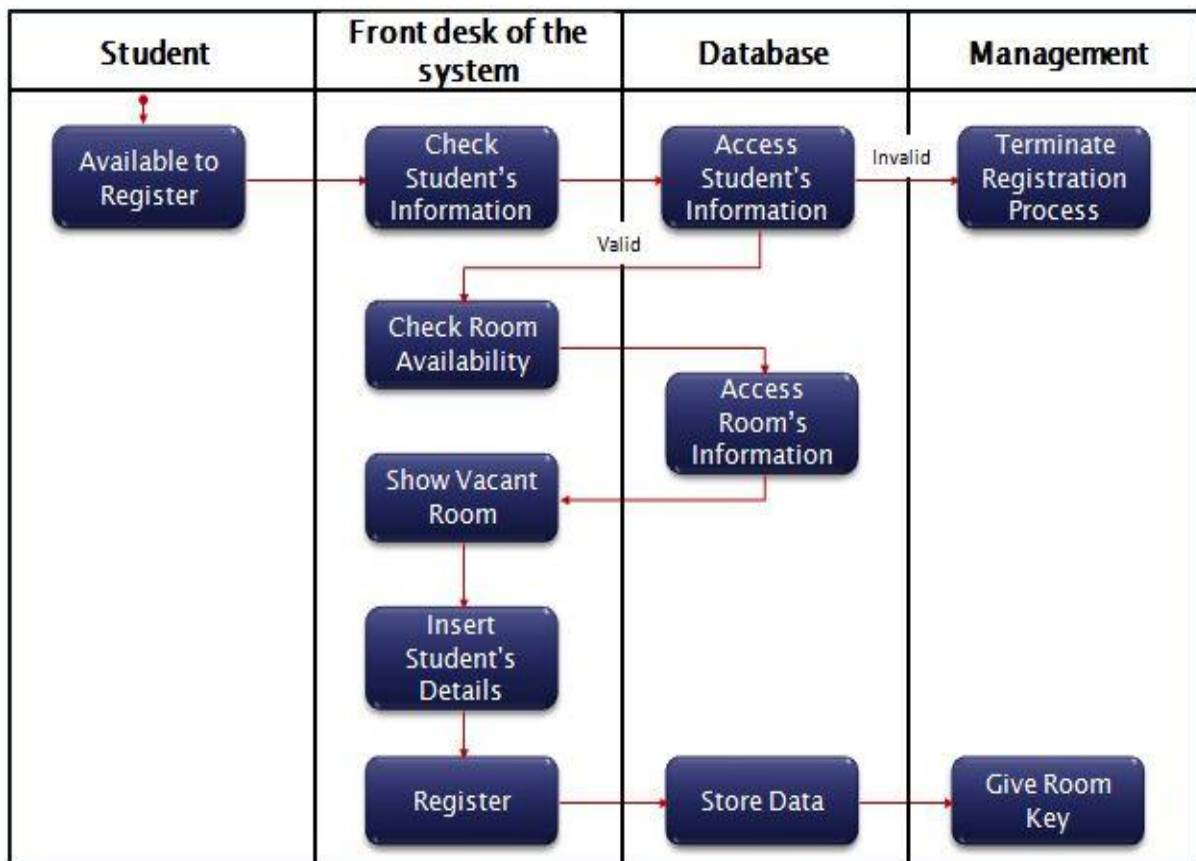


Figure 5: EHRA Process Flow Diagram

### 3.3 Project Method and Activities

#### Gantt chart of Project Development

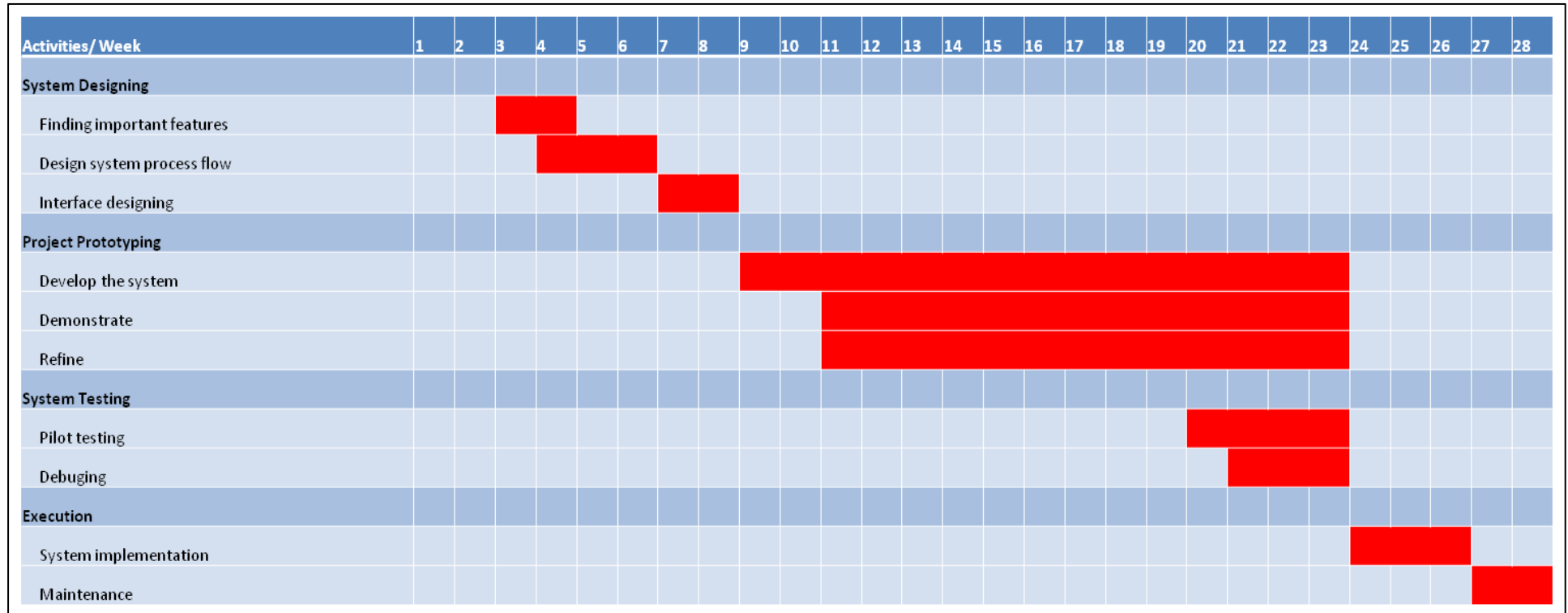


Table 2: Gantt Chart of Project Development



## **CHAPTER 4: RESULT AND DISCUSSION**

### **4.1 Expected Features of New System**

#### **Information Gathering from Interview**

A semi-structured interview with UTP Residential Village staff has been conducted to find out expected important features to be implemented in Enhanced Hostel Registration Application (EHRA). Residential Village staff will act as the admin of the system later on. It is important to gather the information to ensure EHRA's features, design and system architecture fulfil the requirement and relevant to the registration process. Following discussion state the expected features of the system from the Residential Village staff point of view:

- Data Storage

The data storage system or database should be provided in EHRA. EHRA should be able to store the data immediately such as students' name and ID and room information. Large storage size of database should be sufficient enough to support data recording process.

- Room Availability

EHRA capable to check room vacancy before registered to the students. Room checking process is definitely run by the system. The system is able to determine either the room available for one person or two persons.

- Trace Student's Information

To reduce double booked or redundant registration problem, EHRA should has tracking system to check student's status either he/she has registered a room or not. Once the student has registered, he/she will not allow booking any other room.

- Mobility

EHRA will use android tablet as its platform. The advantage of using tablet is energy saving and mobility. Hostel inspection is one of the routine for Residential Village staff. EHRA should be designed with mobility to assist staff in providing room information during inspection process.

## 4.2 Designed Prototype

Features:

i. Show Hostel Number

EHRA will check room availability either for one person or two persons. If it is available for one person, “Add Roommate” feature will disable. If it is available for two persons, “Add Roommate” will enable. Another row will appear to insert roommate’s name and ID. “Show Hostel Number” will display hostel block number, house number and room number. Once the room has been filled by two persons, it will not be available for others.

Example: Block: **A** House: **03** Room: **05**

Number of block is set from A until C. House is set from 01 until 04. Room is from 01 until 05.

ii. Insert Registration Details

Student required inserting their name and ID number for registration process. Same process goes to the roommate’s name and ID.

iii. Information Tracking

This feature will track student’s information based on ID number. The system need to track either the particular student has registered or not. If the student has registered for a room, the system will disable or terminate the registration process.

iv. Add Roommate

Only unregistered student with same gender allow being the room partner. The system will check the validity before allow the roommate registration. Another row will appear to insert roommate’s name and ID.

v. Data Storage

Button “Register” will be enabled after all data is valid for registration process. By clicking the button, the data will be stored in data storage system using local server or online server. Storage system will be able to store the data immediately such as students’ name and ID and room information. The size of data storage should be sufficient enough to support data recording process. The app also has a button “Registration Info” to show the content of the table.

### 4.3 EHRA

Interface of EHRA and its functionalities:

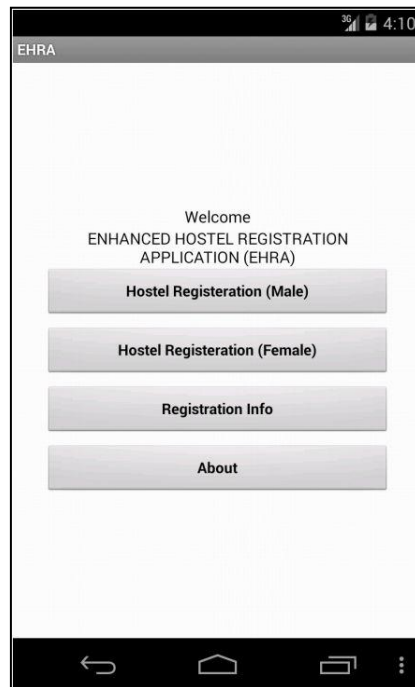


Figure 6: Homepage of EHRA

The Homepage of EHRA consists of greeting and four main buttons;

1. Hostel Registration (Male)
2. Hostel Registration (Female)
3. Registration Info
4. About

Each button has different function than others. There will be further explanation in the next paragraph for every function in EHRA.

Figure 7: Hostel Registration for Male

### Show Hostel Number

EHRA will show the hostel number consist of block, house and room automatically. This hostel number appears as it is vacant and ready to be filled by male student. Student has no option than take the hostel as showed by the system. Obligation of choosing favourite hostel is implemented in this system to ensure the vacant rooms will be filled in orderly manner. This is important to the database management at the end of the registration process as it will keep the table in organized order.

### Registration Detail

Student's name and ID will be filled into the text box as shown in the figure above. EHRA provides space for roommate registration as optional. Student allowed choosing and registering his roommate if any by repeating the same inserting details process. When all details are completed, then it will be stored in the database directly.

EHRA

Hostel Registration(Female1)

Show Hostel Number

Block C House 4 Room 3

Registration Detail

Name Sarah

ID 11777

ADD Room Mate

Name Katty

ID 12888

Clear Back Register

Figure 8: Hostel Registration for Female

### Show Hostel Number

The same features like Hostel Registration for Male, EHRA will show the hostel number consist of block, house and room automatically. This hostel number appears as it is vacant and ready to be filled by male student. Student has no option than take the hostel as showed by the system. Obligation of choosing favourite hostel is implemented in this system to ensure the vacant rooms will be filled in orderly manner. This is important to the database management at the end of the registration process as it will keep the table in organized order.

### Registration Detail

Student's name and ID will be filled into the text box as shown in the figure above. EHRA provides space for roommate registration as optional. Student allowed choosing and registering her roommate if any by repeating the same inserting details process. When all details are completed, then it will be stored in the database directly.



Figure 9: Registration Info Checking

EHRA is equipped by a checking system. This feature was designed to check the validity of student's information either he/she has registered or not. By entering student's name and ID, the system will track down the information from the database. It will display student's hostel number at the bottom. If the student has registered before, this system will terminate the registration process as the rule stated that a student only allowed booking a room only. If the student did not registered yet, it will proceed to Hostel Registration interface.

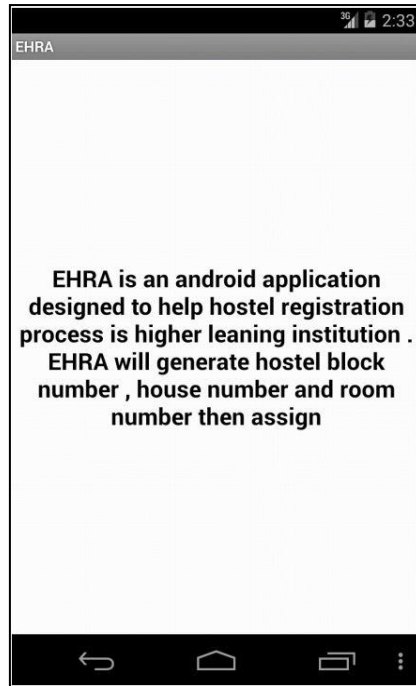


Figure 10: About EHRA (Brief explanation about EHRA)

			block	house	room	status	info	contact	type	id	name
<input type="checkbox"/>			a	4	5	1			1	12346	John
<input type="checkbox"/>			a	4	5	1			2	12345	Alex
<input type="checkbox"/>			a	4	4	1			1	13615	Firdaus
<input type="checkbox"/>			a	4	4	1			2	13611	Fadhli
<input type="checkbox"/>			a	4	3	1			1	11777	Muhamad
<input type="checkbox"/>			a	4	3	1			2	11888	Remy
<input type="checkbox"/>			a	4	2	0			1		
<input type="checkbox"/>			a	4	2	0			2		
<input type="checkbox"/>			a	4	1	0			1		
<input type="checkbox"/>			a	4	1	0			2		
<input type="checkbox"/>			a	3	5	0			1		
<input type="checkbox"/>			a	3	5	0			2		
<input type="checkbox"/>			a	3	4	0			1		
<input type="checkbox"/>			a	3	4	0			2		
<input type="checkbox"/>			a	3	3	0			1		
<input type="checkbox"/>			a	3	3	0			2		

Figure 11: Database of EHRA

The database stores the registration details such as hostel number and students' details as shown in the figure above.



#### 4.4 Result Discussion

A system testing was conducted in Residential Village Offices. The group of target was Residential Village Management staffs who also are Residential Village supervisors. They are responsible in managing accommodation of students in UTP. In this testing, 10 supervisors were chosen as respondent. To come out with the result, a seven questions survey regarding EHRA was conducted. The charts below are the result of the survey:

**Question 1:** By comparing current hostel registration process with EHRA, do you agree or not EHRA process is faster?

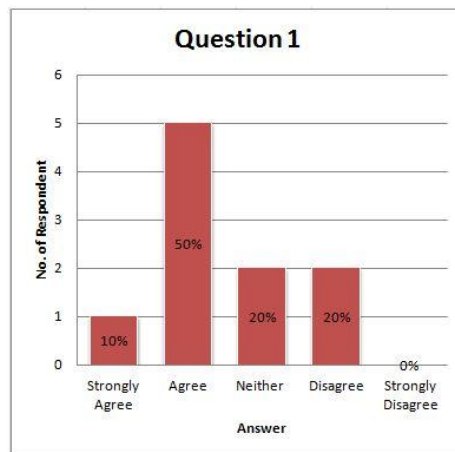


Chart 2: Result of Question 1

Based on the survey, 10% of respondents strongly agree and 50% agree that EHRA registration process is faster than the current registration process. Searching for vacant rooms is easier than before. System checking for student's information is faster and straight forward. The data will be stored directly into the database.

**Question 2:** Does the database system of EHRA is more systematic and easy to store data?

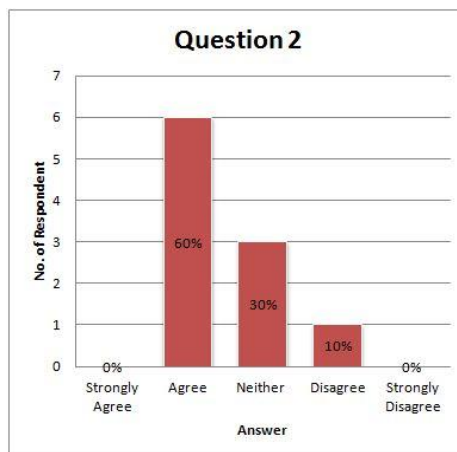


Chart 3: Result of Question 2

Majority of the respondents (about 60%) agree that the database system of EHRA is more systematic, organized and reliable. The data will be stored immediately after completed the registration process for every student. There is no more manual data transferring from spread worksheet to the master table.

**Question 3:** By Using EHRA, there will be free-paper day-to-day process?

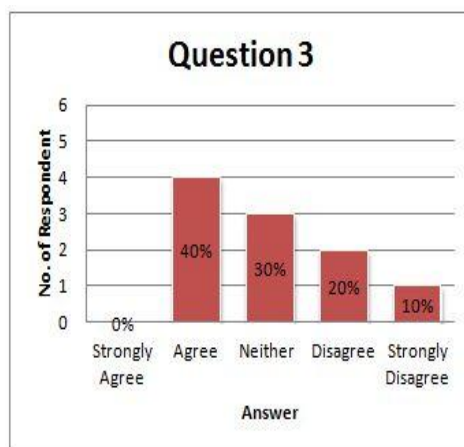


Chart 4: Result of Question 3

Only 40% of the respondents agree that by using EHRA, it will eliminate the paper consumption. As EHRA is fully digitalized, it does not use any single piece of paper. But the rest of the respondents stated that paper is still needed in day-to-day operation. However the number can be reduced if EHRA is implemented.

**Question 4:** Does EHRA with android platform will be able to replace the current registration process?

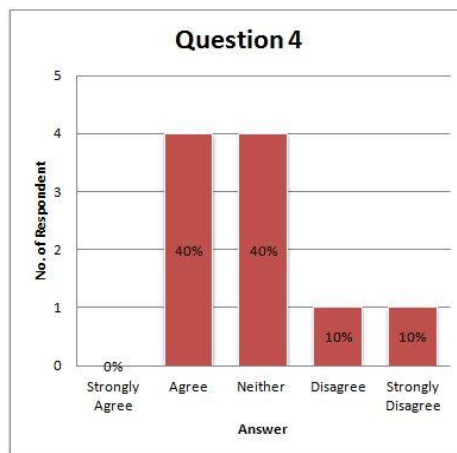


Chart 5: Result of Question 4

From the total number of respondents, only 40% agree that EHRA will be able to replace current hostel registration. Since EHRA is using android tablet to operate, it is hard to replace desktop computer as it provides more functionality than android tablet. The cost of EHRA implementation is questioned by the respondents. The transition process towards EHRA also is one of their concerns.

**Question 5:** EHRA uses android tablet to operate. Does EHRA consume less electric energy compare to computer?

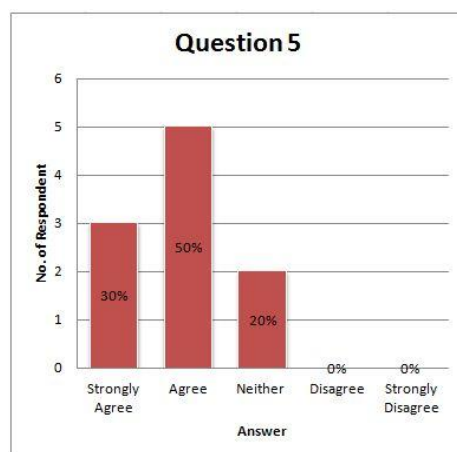


Chart 6: Result of Question 5

80% of the respondents agree that EHRA will reduce electric energy consumption as it uses android tablet to operate the system.

**Question 6:** Does EHRA can reduce data missing, data redundancy and data duplication problems?

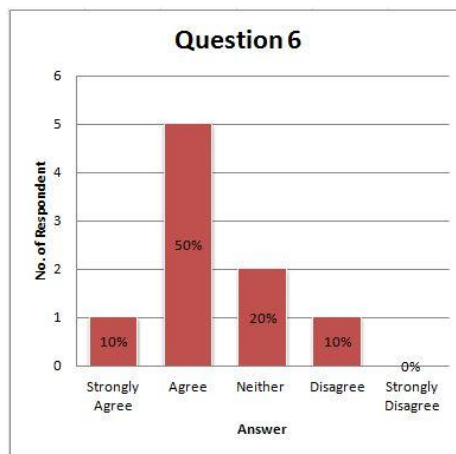


Chart 7: Result of Question 6

From the survey, 10% of the respondents strongly agree and 50% of them agree that by implementing EHRA to replace the current hostel registration process, it will reduce data missing problem during data transferring process. It also reduces data redundancy and data duplication error inside the database.

**Question 7:** Are you looking forward for EHRA future development and improvement?

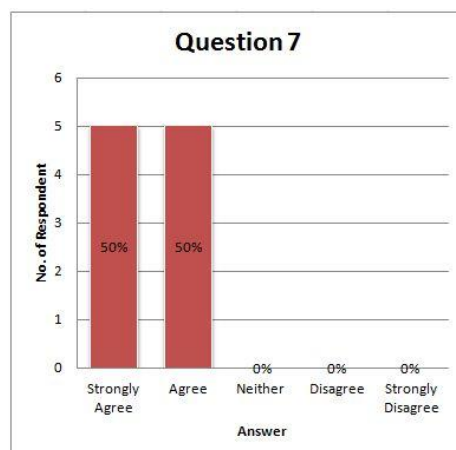


Chart 8: Result of Question 7

All respondents agree are looking forward for EHRA future development and improvement. As this system will help them to enhance the efficiency during registration process, they gave positive thought about EHRA reliability in the future.

From the survey result, the respond from the target group is very positive. EHRA has potential to be developed in the future with a few improvements. EHRA is able to solve the existing problems regarding hostel registration process. The result of system testing can be simplified as below:

- EHRA provide faster registration process compare to the current process
- The database system of EHRA is more reliable, organized, straight forward and systematic
- EHRA reduces the technical error during and post-registration process
- As EHRA is operating by using android tablet, it reduce the electric energy consumption
- EHRA reduce paper consumption in hostel registration process

## **CHAPTER 5: CONCLUSION & RECOMMENDATION**

In this document, it explained about the starting idea about Enhanced Hostel Registration Application (EHRA). The application provides new platform for higher learning institution in managing hostel registration system. There are four chapters in this document which are introduction, literature review, methodology and conclusion.

The relevancy to the objective is the system also improves the efficiency and effectiveness of hostel management in higher learning institution by optimizing the utilization of information technology (IT). By taking the initiative of Green Computing technology, this system could help protect our world from the greenhouse effect by promote a better paper waste management through digital hostel registration system.

The development of system uses the Rapid Application Development (RAD) method. There will be four main phases in the RAD which are requirement analysis and system designing, project prototyping, system testing and execution. The system will be developing using ECLIPSE, an application development tool.

A system testing was conducted. As the result, EHRA provide faster registration process compare to the current process. Besides that, the database system of EHRA is more reliable, organized, straight forward and systematic. EHRA also reduces the technical error during and post-registration process. As EHRA is operating by using android tablet, it reduces the electric energy consumption. In addition, EHRA reduce paper consumption in hostel registration process because it is fully digitalized.

For the improvement, EHRA prototype will be added with a few features such as differentiate hostel registration for male and female without separating the interface. The architecture of data storage system or database also should be redesigned to make it compatible with online server. For continuous improvement, EHRA prototype will be tested from time to time to find out the gap and close it.

As a conclusion, this system perhaps will be able to replace current registration system in order to increase the efficiency and effectiveness of hostel registration at the same time promotes green computing technology.

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